REMARKS

Original claims 1-30 are pending in this application. Claims 1-5, 9-11, 14-25 and 28 were rejected under 35 U.S.C. § 103(a) as allegedly obvious over U.S. Patent Application Pub. No. 2004/0117510 ("Arimilli") in view of U.S. Patent No. 5,371,852 ("Attanasio") and U.S. Patent No. 4,663,706 ("Allen"). Claims 7, 26, 27 and 30 were rejected under 35 U.S.C. § 103(a) as allegedly obvious over Arimilli in view of Attanasio, Allen and U.S. Patent No. 6,938,094 ("Keller"). Claims 6, 8, 12, 13 and 29 were rejected under 35 U.S.C. § 103(a) as allegedly obvious over Arimilli in view of Attanasio, Allen and U.S. Patent No. 6,158,014 ("Henson"). These rejections are respectfully traversed, for reasons including those set forth below.

Applicants' attorney thanks the Examiner for taking the time for today's telephonic interview. Applicants' attorney requests that the Examiner contact him at 510.663.1100 if any further issues need to be resolved prior to mailing a Notice of Allowance.

Formal Drawings

A Separate Letter to the Official Draftsman is being filed herewith, attaching replacement sheets for Figs. 10A and 12B. These figures were originally filed with hand-drawn reference numbers.

Independent Claims 1, 19, 22 and 28

The Office Action asserts that all independent claims are obvious over Arimilli in view of Attanasio and Allen. Apart from the issue of whether one of skill in the art would have been motivated to combine Arimilli, Attanasio and Allen (which Applicants do not concede, as discussed briefly during today's teleconference), the resulting "Arimilli-Attanasio-Allen" does not teach, suggest or indicate several recitations of independent claims 1, 19, 22 and 28.

Claim 1 recites:

1. (Original)   An interconnection controller, comprising:

an intra-cluster interface configured for coupling with intra-cluster links to a plurality of local nodes arranged in a point-to-point architecture in a local cluster, the local nodes including local processors;

an inter-cluster interface configured for coupling with an inter-cluster link to a non-local interconnection controller in a non-local cluster;

encapsulation logic configured to receive intra-cluster packets from the local nodes via the intra-cluster links and to encapsulate the intra-cluster packets as inter-cluster packets for transmission on the inter-cluster link; and

a module comprising a remote transmission buffer, the module configured to:

receive inter-cluster packets from the encapsulation logic;

store inter-cluster packets in the remote transmission buffer;

forward inter-cluster packets for transmission on the inter-cluster link;

determine when the remote transmission buffer is empty;

generate a special packet for transmission on the inter-cluster link when the buffer is empty; and

forward the special packet for transmission on the inter-cluster link *without storing the special packet in the remote transmission buffer*.

(Emphasis added.)

Features parallel to those italicized in claim 1 are also recited in independent claims 19, 22 and 28. Support for such limitations may be found in the specification, e.g., in the following passage:

Logic 1285 polls the contents of transmission buffer 1280, preferably every cycle, to determine whether transmission buffer 1280 contains any valid inter-cluster packets 1275. *When logic 1285 determines that transmission buffer 1280 contains no valid inter-cluster packets 1275, logic 1285 generates a special packet 1287 and transmits special packet 1287 directly to multiplexer 1290.* In this way, transmission buffer 1280 does not fill up with special packets 1287 when there are no valid inter-cluster packets 1275 to send. Multiplexer 1290 transmits multiplexed special characters 1287 to SerDes macro 1295, which performs serialization and bit conversion on multiplexed special characters 1287 to produce special characters 1297 for transmission on the inter-cluster link.

In this example, when a remote interconnection controller receives special characters 1297, the remote interconnection controller will extract clock data from the special characters 1297, but will not store special characters 1297 in a reception buffer for valid inter-cluster packets.

(Specification of the present invention at p. 39, lines 1-13, referencing Fig. 12B.)

The Art Relied Upon Does Not Teach the Determining, Generating and Forwarding Steps Noted Above

During today's teleconference, the Examiner kindly acknowledged that the art relied upon does not teach the determining, generating and forwarding steps noted above. The Office Action notes that Arimilli does not teach determining when the remote transmission buffer is empty. (Office Action at p. 4, ¶ 2.) Therefore, it seems that the "special data packet" described in the portion of Arimilli (p. 5, ¶ 41) referenced in the Office Action (Office Action at p. 4, ¶ 1) has nothing to do with the recited step of "generating the special packet when the remote transmission buffer is empty." Moreover, there appears to be no indication that the referenced section of Arimilli (p. 5, ¶ 43) teaches the "transmitting without storing" step.

The teachings of Allen do not fill these conceptual gaps, for at least three reasons. First, Allen's "buffer not full" flag indicates a "not full" condition, which is not the same as an "empty" condition. The passage of Allen referenced in the Office Action (at p. 5, ¶ 3) states:

> Left OUTQ buffer may be a double buffer, having capacity to store two packets of information awaiting transmission over left serial data link 22. When one or both of its sections is empty, it asserts a buffer-not-full flag, which is read by cluster module controller 32. *When both sections of left OUTQ buffer 40 are full, this flag is not asserted* and the packets it contains are being transmitted, as will be disclosed more fully later.

(Allen at col. 8, lines 3-10, referencing Fig. 4.) As understood, the buffer-not-full flag is not asserted *only* when both sections of the buffer are full. Otherwise, the buffer-not-full flag is asserted.

Second, it does not appear that any transmitted packet corresponds with an "empty buffer" condition. Third, it seems that in the configuration referenced in Allen, packets are always buffered before being transmitted: as understood, the only transmission paths are via left output queue buffer 40, right output queue buffer 42 or output queue buffer 54. (See Fig. 3 of Allen.)

CONCLUSION

Applicant believes that all pending claims are allowable and respectfully requests a Notice of Allowance for this application from the Examiner. Applicants' attorney requests that the Examiner contact him at 510.663.1100 if any further issues need to be resolved prior to mailing a Notice of Allowance.

The Commissioner is hereby authorized to charge any additional fees, including any extension fees, which may be required or credit any overpayment directly to the account of the undersigned, No. 50-0388 (Order No. NWISP045).

Respectfully submitted,
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